The Chemical Age

A Weekly Journal Devoted to Industrial and Engineering Chemistry

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"The Chemical Age" in War-Time

A SELF-RESPECTING trade journal does not make public parade of its domestic problems. There are, however, national considerations involved in the present paper position which seem to make it desirable for some explanation to be given in these columns.

The price of newsprint was £11 5s. a ton before the war. It raised on April 1 to £21 10s., and newspaper proprietors have been warned that it will probably rise to £25 on July 1. These are Government controlled prices, and other classes of paper used in newspaper production show a proportionate, and in some cases greater, increase. Paper is by far the heaviest item in the raw materials budget of the newspaper industry, and probably no other, and certainly none of national importance, has been called upon to face so steep a rise. Newspapers know at least as much of Government control as any other branch of industry. Editorially they are subject to the Press and Censorship Bureau, and on the publishing side they are under the heavy hand of the Ministry of Supply acting through the Paper Controller. Their paper problem is complicated by the enforcement of a strict rationing system, by which they are limited to the consumption of 30 per cent. of the amount supplied to them in the corresponding period of last year. These various restrictions have led to the making of substantial changes in every department of a newspaper. Readers of THE CHEMICAL AGE cannot fail to have been struck by the transformation which is going on in their morning and evening papers. They have palpably far less space than in peace time for the services they set out to perform, and their contraction, while indicating the stress of their special problem, is a tribute to their power of adaptability to circumstances.

Actually the same factors have been in operation in the case of this journal, and it is a matter of pride to the proprietors that THE CHEMICAL AGE looks more like its old self than most of the general newspapers in their war-time guise. THE CHEMICAL AGE, in fact, has succeeded in maintaining its structure intact in face of abnormal difficulties. Some issues have been smaller than they were in peace time, but important Special Numbers continue to bear the hall mark of quality and quantity for which this journal has been distinguished for very many years. There has been a tightening up in every direction, and certain features considered appropriate to normal working have been temporarily discontinued. Still, nothing of real value has ever been omitted, and such adjustments as have been made have passed without a single discoverable complaint from a circle of readers which remains virtually constant at the pre-war figure.

That is a very important fact in estimating the influence of a trade journal in the present national emergency. The reading constituency of THE CHEMICAL AGE remains intact, and its intrinsic value to the advertiser is at least as great as it has ever been. It may indeed be held to be greater, because the experience of its publishers has been that its pages are even more closely studied in the urgency of war-time than in the piping times of peace. The advertising story is somewhat different, but it is not unsatisfactory when account is taken of the enormous dislocation which the war brought to all forms of business in the first weeks of the war, and of the endless difficulties caused by Government control, more particularly in the apportionment of raw materials. There is every sign that advertisers are finding their feet again and have come to realise that they cannot perform to the full their branch of national service without recourse to their trade journal.

The proprietors of THE CHEMICAL AGE recognise that further adjustments may be forced on them by war conditions. The combined costliness and the scarcity of paper alone may lead to modifications of their normal publishing policy. Again, however, their experience suggests that their pages will never show so revolutionary a change in appearance as those of the general daily and weekly Press. For one thing, they will always observe a proper balance between advertisements and news. It must be remembered that trade paper advertising is in a class by itself. The greater part of it is as much news to the reader as any of the editorial columns. It is even more important that every facility should be given for trade paper advertising in war-time than in normal periods, as it is very definitely a part of the national war effort, and in no other way can the necessary links between manufacturer and retailer and between exporter and importer be maintained in their economic fullness.

In the light of all these considerations, this journal faces future war developments with every confidence in its ability to serve the interests of its own special constituency as well as those of the wider national effort.

CONTENTS

"The Chemical Age" in War-Time ...	223
Notes and Comments	224
Plastics for Engineering—Plastics in Chemical Plant—Soap Trade Export Group—Colloidal Rhenium—British Calcium Carbide?	
Welding Construction	225
Notes from Works Safety Jottings	227
Westmorland Lead-Mine Effluent	228
Letters to the Editor	229
Personal Notes	229
Chemical Matters in Parliament	230
New Control Orders	230
General News from Week to Week	231
Commercial Intelligence	232
Weekly Prices of British Chemicals	233
Stocks and Shares	235

NOTES AND COMMENTS

Plastics for Engineering

IN a paper presented to the Royal Society of Arts last Wednesday, Mr. H. V. Potter spoke on "Plastics as Constructional and Engineering Material." Introducing the subject with a short outline of the history of plastic materials, and a general discussion of the chemical construction of synthetic resins, he pointed out the difference in physical characteristics between those plastics that have a long elastic chain, and therefore have good tensile strength and flexibility, and those with a honeycomb molecular structure, which are less resilient. Passing on to the work of plasticisers, which probably consists in aiding the long molecules of the plastic materials to slide over one another, he then referred to the fillers, which are added to the pure plastics in order to give them the required strength and workability for the engineering industries. The second part of the lecture dealt with the application of plastics to various industries.

Plastics in Chemical Plant

APPLICATIONS in chemical engineering are growing in quantity because of the useful property of chemical resistance possessed by these plastic products resulting in the production of structures of chemical plant in these instead of older materials. Plastic products resist many acids, acid salts and some bases and because of their ready workability materials on a phenolic resinoid base are now used extensively for the construction of dye vats, agitators, reaction and absorption towers, pickling tanks, pumps, valves, washers, etc. A conveyor with links constructed wholly of a plastic is now produced as a standardised article—non-contamination of the chemical with metal and no corrosion of parts are its chief features. A widely adopted application worth special mention is the use of sheet phenolic resinoid for the construction of plating barrels. New chemical-resisting paints and varnishes based on 100 per cent. phenolic resinoids are now used in all cases where maximum life of the varnish film is required against corrosive conditions. One recent application for polystyrene is its use for stoppers for glass bottles containing chlorine and other highly corrosive chemicals. Polystyrene plastics possess lightness, transparency, stability of dimension and high mechanical strength. Vinyl resin plastics comprise many types: the acetate is used for a thermo-setting adhesive; the chloride has rubber-like properties and good chemical resistance; and a third class, the butyral, is used chiefly as the interlayer for the new high-test safety glass.

Soap Trade Export Group

IN pursuance of the Government's policy as laid down in the White Paper, "Aim and Plan of Work of the Export Council," the Soapmakers' and Fat Splitters' Federation have been in touch with the Export Council, and at the request of the Council an Export Group has been formed for the soap trade. The object of the Group is to obtain the maximum additional exports of soaps, and for this purpose it wishes to enrol as members all eligible companies who export soap. Many subscribers to THE CHEMICAL AGE will no doubt wish to become members of the Group, and in the general exporting interests we are very pleased to record the formation of this Group. Readers who are interested should write for details to the Secretary of the Group, Wood Street, Bebington, Cheshire (tel.: Rock Ferry 2000; ext. 583).

Colloidal Rhenium

A METHOD for the production of stable colloidal solutions of rhenium has been developed by Zenghelis and Stathis (C. R. Acad. Sciences, 1939, *209*, 797). To a solution of one gram of rhenium hexachloride in 10 c.c. of water is added 100 c.c. of a gum solution followed by 60 c.c. of 1 per cent. hydrazine solution. The mixture is warmed to 45°-50° C. when 3 c.c. of formalin are added drop by drop before heating again for 30 minutes. Formation of colloidal rhenium is signalised by the dark brown colour of the resultant solution. The latter is finally subjected to lengthy dialysis and evaporated at 40°-45° C. to a volume of 100 c.c. This solution retains its stability for many months. A preliminary study of its catalytic activity showed that it promoted the synthesis of ammonia from its elements and the hydrogenation of maleic and cinnamic acids.

British Calcium Carbide ?

ONE of the most conspicuous results of the extension of warlike operations to Scandinavia is the interference with the supply of wood pulp for paper manufacture; and this effect is bound to be reflected in the pages of THE CHEMICAL AGE. But what may perhaps be a more permanent effect is hinted at in a note published in a recent issue of *The Financial News*. On many occasions we have commented on the lack of a calcium carbide industry in this country, and the failure to establish such an industry has been alleged to have been bound up with Scandinavian vested interests, though the Lochaber scheme, mooted some years ago, came to nought mainly owing to local opposition. Calcium carbide is particularly valuable as an intermediate material in war-time chemical manufacture, and the diminution in imports from Scandinavia necessitates a review of the position. Imports, of course, can be derived from other sources, notably from Canada, where the carbide plant of the Shawinigan Co. is famous, but with the necessary raw materials and power readily available everything now points to the establishment of industry in this island. Cheap fuel points to South Wales as a suitable location for the industry; plentiful "white coal," on the other hand, suggest a revival of the Lochaber scheme.

WELDING CONSTRUCTION

Applications to Plant in the Chemical Industry

by E. DACRE LACY, M.Inst.W.

THE manufacture of plant for the Chemical Industry has for some years set a difficult problem for engineers. It is essential for the chemical manufacturer that plant for this purpose should be of high quality, because in the manufacture of chemicals so much depends upon the purity and uniformity of the constituents and the vessels in which they are made.

For this type of work two classes of steel are used: mild steel and stainless steel, the latter comprising a number of specially manufactured proprietary brands of corrosion-resisting and heat-resisting steels. In the construction of vessels for the chemical and allied industries, in both mild steel and stainless steel, electric welding is now considerably used. In fact, it can be stated that it is a very rare exception in these days to find products of this type fabricated by any other means. In the welding of both these types of steel it is essential that the article so manufactured should possess the required finish; and in order to obtain this it is essential to utilise the right type of welding plant and the correct electrodes. Also, the welding operator should have some knowledge of the underlying principles of metallurgy and application to special steel. In addition to the actual fabrication of vessels for the chemical industry, welding is now greatly used in the construction of plant for chemical manufacturers and in the erection of steel frame buildings for chemical works.

One of the British firms which has for some years maintained contact with welding progress throughout the world and which, through its own intensive research work, has remained abreast or ahead of foreign developments, is I.C.I. (Fertiliser and Synthetic Products), Ltd. During the course of the erection of the great Billingham factory, which embraces high-pressure plant in many kinds of special and often expensive materials on a scale unknown elsewhere in this country, the large monetary savings that could be obtained from a much wider use of welding in fabrication methods

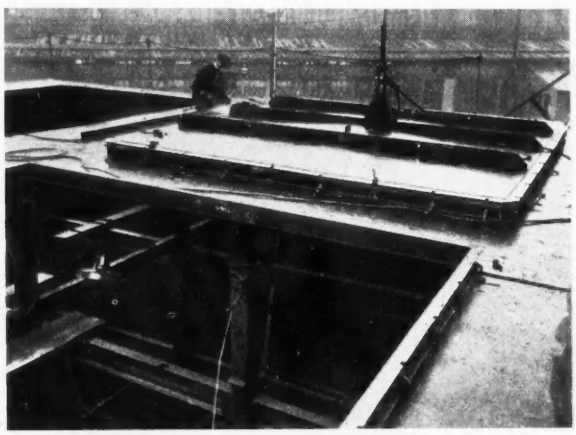


Fig. 1. Deck plating of a welded mild steel purifier constructed by Ashmore, Benson, Pease and Co., Ltd.

became quickly apparent. All the different available welding processes were fully explored, and since these were not then in an advanced or satisfactory state for the purposes required, intensive research was put in hand on the science and technique of welding and its application to high-pressure work, high-tensile steels as well as mild steels, corrosion-resistant steels, copper, aluminium, nickel, Monel metal, etc. Special investigations on the applied design side of welding, from the technical and economic aspects, were undertaken concomitantly.

It will be of interest to publish some details of the plant erected for manufacturing oil from coal by the hydrogenation process, now erected at these works. In the construction of this, electric arc welding has played a very large part.

The commonly employed design of purifiers which are seen around British gasworks involves a cast-iron box made up of machined plates, and laid either on a concrete foundation or elevated on a steel substructure for the purpose of eliminating sulphuretted hydrogen (H_2S) from gas. These tank-like

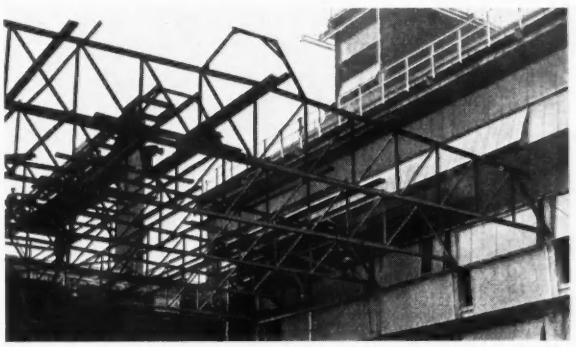


Fig. 2. All-welded 77-foot span roof truss placed in position.

vessels are arranged normally for tiers of horizontal shelves called "grids," usually made of timber strips with ½ in. spacings, which carry several 12 in. to 20 in. layers of "bog ore," *i.e.*, hydrated ferric oxide (a reddish-brown peaty-looking material), or other suitable substance, so that suitable chemical reactions may take place during sulphiding, while revivification proceeds according to the required reactions. The boxes are usually arranged in a line or in square formation in sets of four, and provided with valves and connections so that a systematic working rotation of the gas through the various boxes may be obtained. This system is known as the dry purification of gas. The present article describes some welded mild steel purifiers constructed by Messrs. Ashmore, Benson, Pease and Co., Ltd., for the Billingham factory, which instead of being built of cast iron were constructed throughout of welded steel.

The purifiers have to remove the sulphuretted hydrogen from blue water-gas and they have a total oxide capacity of 411,600 cu. ft., which should be capable of removing the sulphur from 70 to 100 million cu. ft. of gas in 24 hours. They consist of 24 boxes erected on an open site, each 35 ft. square by 23 ft. deep, arranged to take four tiers of horizontal grids, on which can be accommodated layers of oxide 3 ft. to 3 ft. 6 in. deep. The boxes are mounted in sets of eight in double file on a combined riveted and welded substructure about 18 ft. high, and spanning the double boxes is a cantilever transporter crane fitted with a grab for filling them with oxide.

The illustration shows the deck plating of one of the 24 welded boxes erected in the manufacturers' works for experimental purposes before despatch. The side and end plating is ⅜ in. thick and the bottom and division plates are ½ in. thick. The sides and ends are stiffened by vertical R.S. joists and horizontally by means of rolled steel supports for carrying the wooden grids on which the oxide is laid. The divisions are treated in a similar manner, *i.e.*, the division plates are stiffened vertically by rolled steel joints, the plates being welded to the web; the ends of the joists are welded to the bottom plates and the tops are welded to the deck plates, and also connected by means of plate brackets.

The deck plating illustrated in Fig. 1 is 5/16 in. thick, and

has a rise of 3½ in. at the longitudinal centre of the structure for drainage purposes. It will be seen that the deck openings (4 per box), 14 ft. 2 in. by 12 ft. 2 in., are stiffened by means of rolled steel channel curbs welded to the deck plates, these also providing a handy means of accommodating the covers and making a joint. The deck plates are well stiffened by means of plate brackets, welded to the stiffeners, stands, sides, ends and division plates respectively, and in addition they are further stiffened underneath the decks by suitably proportioned rolled steel angles.

The removable purifier covers are entirely of welded construction, comprising a rolled steel angle curb on to which are welded the 3/16 in. thick dished cover plates, stiffened by means of rolled steel flats. The two outside flats are holed to take four lifting shackles, attached to a sling, enabling the transporter crane to remove or replace them readily during the period of changing the purifying material.

The gas-tight joints between the covers are provided with sampling doors; air valves also are provided in the covers and the whole installation possesses the usual stairways, platforms, oxide doors, drains, testing and thermometer pads, commensurate with the most modern practice.

The whole of the work above the substructure is welded

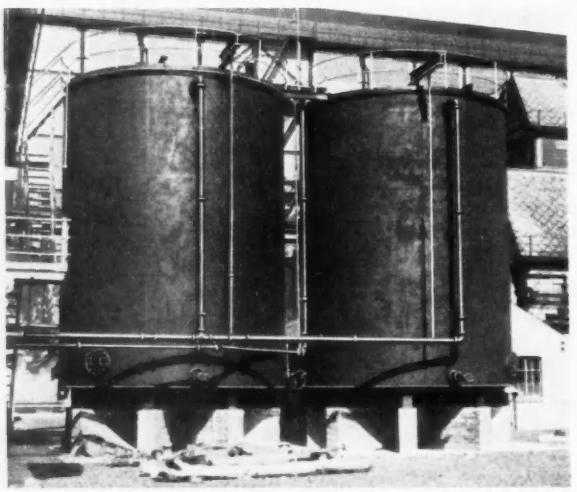


Fig. 3. All-welded 20-ft. diameter stock tanks, of I.C.I. (Alkali), Ltd.

(and embodies many original features, some of which form subject matter for patents) and even the crane rail collector brackets are attached in this modern manner. This large contract involves over 60 miles of welding carried out by skilled tested welders under the supervision of the I.C.I. engineers. The final design was evolved by the combined efforts of the I.C.I. and Messrs. Ashmore, Benson, Pease and Co.'s engineers and craftsmen, and is believed to be the largest installation of its kind in the British Empire.

At another works of the I.C.I.—I.C.I. (Alkali), Ltd., of Winnington, Cheshire—electric welding has been used in the construction of extensions. One of the most recent additions to the already existing construction is a 77-ft. span truss, whose depth had to be limited on account of adjacent buildings and whose function it is to carry a large flat roof. These trusses were fabricated in the shops in halves, the truss being assembled on a welding table by means of positioning bars, and the whole assembly being tack-welded together prior to the welding proper. The whole of the welding on one side of the truss was then carried out in the horizontal position. The truss was then turned over to give access to the reverse side for the vertical welding which was then done. The finished halves were transported to the site where the trusses were completed on the ground prior to lifting into position.

For some years now electric arc welding has also been used extensively in the fabrication of storage tanks of all descriptions. The main reasons for utilising this process in the construction of stock tanks are:—

(1) It is necessary for the tank seams to be strong enough to withstand the force set up by the internal pressure.

(2) The seams must be entirely sealed so that there can be no possible leakage.

(3) By the use of electric welding a considerable amount of weight is saved. This applies to the reduction of the amount of steel used when a tank is riveted, as the rivet holes are eliminated when welding has been substituted.

The elimination of the holes with the subsequent saving in weight of the necessary material together with reduced maintenance charges make the welded tank an economical proposition. Also the absence of rivets often prevents corrosion setting up. The illustration (Fig. 3) shows a couple of 20 ft. diameter stock tanks welded throughout by one of the works of I.C.I., Ltd. Downhand, vertical, horizontal and overhead welding were used in the construction of these tanks; the welding procedure adopted being in accordance with I.C.I. standard procedure sheets.

Typical examples of mild steel welding in a large chemical works, whose chief products are soda ash, caustic soda, soda crystals, bicarbonate of soda, silicate of soda, ammonium chloride and calcium chloride, include the following:—

(1) Dust boxes for flues made of ¼ in. thick plate built up in two sections. These sections are fastened together by bolted flanges which consist of flats welded to each half. Each section is stacked completely, and then entirely welded, "veed" butt welds being used. On the T-bar stiffeners continuous fillet welds were made. About 450 feet of welding is used in each part, the approximate weight being two tons. Chain guards made of ⅛ in. plate with 3/16 in. stiffener are welded; only one run is made on each of these.

(2) Cooling troughs built up by welding in the following manner: The trough, which is 7 in. by 4 in. angle-iron reversed, is built up and welded on ⅜ in. bottom plate, stiffened at each corner. Three T-bars 2½ in. by 2½ in. by ⅜ in. are fixed across the bottom to which is welded ¼ in. plate, forming a double bottom to hold lagging. Lifting brackets are welded on, and the outlet pocket branch are all welded.

(3) Vessels of 5/16 in. thick plates 8 ft. long by 3 ft. diameter, welded in the following fashion: Two steam jackets are welded direct to the outside of the shell, and the annular space is ¾ in. on radius, the working pressure of the steam being 15 lb. per sq. in. Butt joints are used on all shell construction. In some cases these vessels are of stainless steel, such as Staybrite.

Numerous engineering concerns are well known for their manufacture of products for the chemical and allied industries. It is, however, impossible to mention the names of these in the space available, but among such products may be mentioned milk-heating vessels, constructed by welding sheets of Staybrite. A vessel of this type has bright polish inside, with all welds ground off dead smooth, and is complete with 1½ in. bore tinned copper oscillating coil.

Electric arc welding is now extensively used in the manufacture of plant for such industries as the soap and artificial silk trades. Welded soap-boiling pans, welded storage vessels, large electrically welded mild steel vessels, 9 ft. 6 in. high by 5 ft. diameter, are typical examples of fabricated work of this kind manufactured for these industries. These vessels are constructed of ⅝ in. thick plates, with ¾ in. thick cover, the whole being galvanised after manufacture. A steam coil of 1½ in. bore solid drawn tube was fitted inside.

The above-mentioned articles were manufactured in mild steel. Other examples of electrically-welded work comprise cylinders constructed of 1/16 in. thick stainless steel sheets, dull-polished on one side. These small cylinders form the linings of mild steel electrically welded salt chutes for a soap works. The hopper portions, also in stainless steel, are 3/32 in. thick. Larger cylinders form ventilating stacks to soap kettles, and are also made of stainless steel, dull-polished on the inside. Other products include welded steel benzol rectification stills, calandria vacuum pans, hemispherical lead kettles, and numerous jacketed chemical vessels, saturators and mixers. It will be readily understood from the above that electric arc welding plays a very large part in almost every branch of the chemical industry.

NOTES FROM WORKS SAFETY JOTTINGS

The Philosophy of Safety

by JOHN CREEVEY

SAFETY, with regard to chemical plant, has to be considered from more than one aspect and in the proper balance of the views taken. There are things to be done, and things to be avoided. There is the plant itself, considered as a whole, as well as accessory features each of which can make its presence known if seemingly ignored. Then, also, we must never forget that matters of maintenance are closely bound up with safety. Unless kept in healthy condition, plant—like the human body—is ever subject to many ills, and the ultimate result may not be accurately seen, although troubles are predicted. Minor features which are allowed to get out of trim can turn to greater and more serious matters, but it is not always an accident that results. Excessive expenditure upon repairs may become the reminder that there has been something wrong, and when we are able to look more closely into the details we may find that negligence has been followed by some unsafe condition attending the operation of the plant.

* * *

The human element has always to be taken into consideration, even though the makers of control instruments sometimes lead us to believe that once the dials and gauges are installed there is little more to do in the matter of safety or even of the operation of the plant. I have said "sometimes"; it is the result of looking over some old diaries kept during my early works experience and reading them in the light shed by modern leaflets on control instruments. Of course, in those days chemical plant was only a fraction as perfect in design and operation as nowadays, but, even so, some of the errors that men made are rather startling—considering that commonsense was then part and parcel of us, or should have been, just as at the present day.

* * *

I believe that some of the old-time workers, nevertheless, were rather more conscientious than many of their successors are to-day, both in the matter of safety and in the technique of doing things. For that reason I have always admired the painting of the first apprentice at Morson's works, which was one year reproduced by Thos. Morson and Sons upon their calendar, and which still hangs upon the wall before me. It seems to remind me of that line of Chaucer which reads: "If gold ruste what shall iren do," for here is portrayed one of the men upon whose efforts and errors the chemical industry has been built up steadily step by step over a number of years, and with it the safety of apparatus ranging from the open pan heated by the furnace fire to those huge pressure vessels that now do the things once thought impossible. To-day among plant workers we expect to have the gold, in view of the training facilities that are afforded; at Morson's works in those early days the apprentice was "iren."

* * *

The human element of which I have spoken does not merely concern the accidents that may be caused by doing something which just should not be done, in order to save time or on account of a lapse of memory. It concerns forgetfulness in all phases, and pure negligence as well. Lack of method on the part of works administration can also be at fault. More than one steam pan of the ordinary open-top type has been known to burst because the pan was an old one and had not been tested at regular intervals as the years went by. You will not see the records in the annual reports of the Inspector of Factories and Workshops, although I believe there is one reference where a fatality occurred and the accident could not be kept in the dark. The inspection of a heap of scrap adjoining one of the works where I passed some of my early days showed the remains of more than one pan which would have caused a casualty, but for the mere chance of good fortune, for the pressure of the steam had left its mark upon the torn metal when it came to exceed the strength of the walls that had been reduced by continued corrosion. We inspect and test our pans regularly once a year, and gauges are also tested. Throughout the course of the year the maintenance staff reports without fail any signs of corrosion regarded as more than normal. Pans burst just when they are not expected to, if conditions are allowed to favour trouble in this direction. Like all other vessels heated by steam, such pans have to be kept in good condition, but at more than a few works the open-top pan does not receive the attention it requires in comparison with other equipment.

* * *

The word "maintenance" does not cover merely the execution of repairs when noted to be necessary, as some are inclined to think. There is also the doing of things that will reduce the need for such repairs, excepting—of course—those cases of severe corrosion and like matters which are recognised as demanding regular attention.

* * *

As an adjunct to safety from the aspect of doing what is essential throughout the year for keeping the plant in good form, there is the plant stock log, which some do not recognise at its fullest value. I am not referring to the plant log in which is recorded the daily routine of operation, be it in the form of sheets or book, although there are works where no log whatever is kept other than odd slips of paper which are passed to the office and "spiked" for future reference in questions of checking time and cost. By plant stock log I mean a book or file in which there is entered a record of all the plant at the works, with a note as to when bought, when delivered at the works, when erected or fitted and put into use, at the same time showing the value of plant and accessories in use or in store as spares. In such a record for the plant in use should also be entered certain details of maintenance and repairs, and the date and details of any testing that has been done. Drawn up in proper tabular form, the system will show at a glance just where a little more attention may be needed in matters of inspection—especially inspection by someone on the administrative staff as well as by the usual routine staff whose immediate concern it is. With such a record kept up to date with regularity, there is less likelihood of a vulnerable part of the plant escaping the regular testing that it needs.

* * *

Records are made for the purpose of keeping note of things that cannot be committed to memory, or in which the memory of one or more of us is ever liable to fail!

* * *

My philosophy in the matter of safety for chemical plant may appear somewhat on the ridiculous side of what is usually regarded as commonsense, or even schoolboy knowledge. We are, all of us, gifted with a certain amount of commonsense—or thwarted by lack of it. Yet one has only to make the tour of a large works, whether chemical or engineering, to notice how often and unexpectedly things stand out that point to the lack of a little thought on the part of works employees. Even where a particular works has an exceptionally good accident-free record, there are minor occurrences which happily have been able to allow the record to remain unbroken. A ladder left in a dangerous position, or tools lying in the footway either at ground level or, with more serious possible consequences, when in use at an overhead platform—these are cases more frequently met with than need be. The display of accident-prevention posters about the works has done much to reduce this state of affairs, and so make the possibility of accidents rarer. This is especially to be seen where the point is driven home in no uncertain manner, as illustrated by the admirable posters which I.C.I. have used at some of their works and which have been reproduced from time to time in the I.C.I. Magazine.

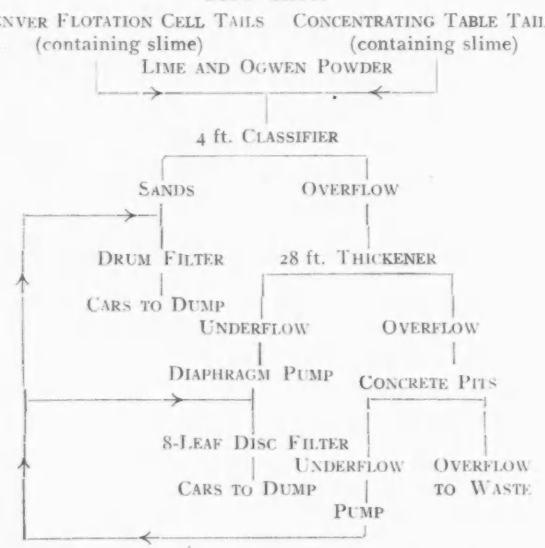
Westmorland Lead-Mine Effluent

Further Remedial Measures Taken

IN spite of the elaborate filter system installed to purify the effluent of the Greenside lead mine, at Glenridding, as recorded in THE CHEMICAL AGE (*42*, 1076, p. 84) on February 10, complaints of serious pollution of Ullswater were made at a recent meeting of the Lakes Urban Council at Ambleside. Visitors and fishermen, it was stated, had raised an outcry about the state of the lake which was alleged to have been polluted by silt from lead mines and affected for nearly five miles of its length. It was agreed to press the Westmorland County Council to take further action.

It was obvious from our previous account that the Basing hall Mining Syndicate, Ltd., proprietors of the Greenside mine, had been far from neglectful of the desirability of preserving the amenities of the lake above which their property is situated; they had called in the aid of chemical experts and had installed plant to deal suitably with the effluent before its outflow into the lake. But in view of the repeated local complaints we communicated with their director at Glenridding and have received a most interesting account of what has been and is being done to deal with the effluent complained of. There can be no doubt, from the accompanying flow sheet and details of operation, that the company is taking the matter seriously in hand in a public-spirited manner. Some *constructive* criticism, however, from the complainant anglers and others, would be interesting to read.

Flow Sheet



Tailings, including slimes, leave the tables and flotation cells and are fed to a 4 ft. mechanical rake classifier. This machine gives two products:—(1) De-watered sands containing some slimes; and (2) overflow of the settlement pool.

The de-watered sands were originally trammed to the dump. Another filter has been installed on the 4 ft. classifier and these sands are now filtered to remove all possible moisture from them before dumping, thus removing one cause of slime in the beck. The pulp flowing to the 4 ft. classifier is flocculated (*i.e.* aggregation of the dispersed colloidal particles) by the addition of lime (1 in. per ton of ore treated) and Ogwen (0.25 in.-0.33 in./ton).

The overflow from the settlement pool of the 4 ft. classifier is fed to a 28 ft. thickener. This machine gives two products:—(1) Thickened slimes; and (2) milky overflow.

The thickened slimes are pumped to an eight-leaf disc filter. (This machine has only recently been enlarged to give a 33 per cent. increase in filtering area). The filtered cake from this machine is trammed to the dump and the filtrate of clear water runs to the beck. The milky overflow from the thickener is to be fed to two concrete settling pits, where a further addition of lime and Ogwen will be made. The underflow from these pits (consisting of thickened, very finely divided slimes or fines) will be fed to a pump. This pump will deliver the slimes to one or other of the filters now employed on tailings reclamation.

Numerous experiments have been and are still being carried out on the settlement of slimes from the mill and the best results have been obtained with the mixture in use there. Several chemical firms have sent their own experts here in an attempt to prove that their own particular method of settlement was an improvement on that in use in the mill. All have admitted that a very difficult problem is presented and that the method in use at Glenridding could not be bettered or even equalled by their own processes.

The proprietors of the mine are studying a modification of the flow-sheet whereby the tonnage sent to the ball mill is substantially reduced, thus reducing the amount of difficult slime to be handled.

Small Manufacturers' Association

Area Committees Set Up

The first general meeting of the Federation of Manufacturers and Producers of Great Britain (Small Manufacturers' Association) was held at the King's Hall, Holborn Restaurant, London, W.C.1, on April 3, when the Temporary Council made a report of its activities. All the Council, with the exception of Sir Charles Allom, who had sent in his resignation, and Mr. Robert Sanders, who did not seek re-election, were re-appointed, and fourteen new appointments to the Council were made. The elected Chairmen of Area Committees to be formed will automatically become *ex officio* members of the Council.

Area Committees have to be set up in Liverpool, Newcastle-on-Tyne, Hull, Cardiff, Plymouth and Southampton. Arrangements will be made for this during the next few weeks. An Export Council of five members has already been set up.

Offices will be established in the West End of London during the next week or two. In the meantime all communications are to be addressed to 30/40 Dalling Road, Hammersmith, W.6.

ENQUIRIES FOR CHEMICAL SUPPLIES

Dr. H. de Laszlo is visiting America at the end of this month with a view to investigating sources of supply for chemicals that are unobtainable in this country. Chemical manufacturers interested in intermediates for dyes and pharmaceuticals, synthetic active principles for insecticides and perfumery, and organic chemicals generally, who are experiencing difficulty in obtaining the required materials, are invited to communicate with THE CHEMICAL AGE without delay, in order that their enquiries may be passed on.

IF THE RECENTLY-DISCOVERED mercury ore deposits, reported in Northern and Central Australia and in Queensland, are found to contain even as little as 1 per cent. of mercury they will be of great value to the Australian Commonwealth and also to Great Britain. Mr. A. W. Dye, the well-known Sydney analyst, after remarking on the uses of mercury in the explosives and gold-mining industries, said: "Since we have had to import all our own mercury so far, this discovery is of tremendous importance to us, especially as the price of mercury has advanced from 3s. 9d. per lb. to 16s. 4d. per lb. since the outbreak of war."

Personal Notes

MR. C. M. PICKTHALL, of the Department of Overseas Trade, has been appointed to be Commissioner-General for the United Kingdom at the New York World's Fair, which re-opens on May 11.

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MR. G. R. BASHFORTH, of Round Oak Steelworks, was re-elected president of Staffordshire Iron and Steel Institute at Dudley this week. MR. H. A. MACCOLL, lecturer in metallurgy at Wednesbury County Technical College, was appointed secretary in succession to DR. F. C. ROLLASON.

* * * *

MR. OTTO C. VOSS, an authority on the oxy-acetylene process in the United States, has been awarded the James Turner Morehead Medal by the International Acetylene Association. The medal is awarded annually for outstanding work in the production or utilisation of calcium carbide and acetylene.

* * * *

At the recent ordinary meeting of the Society of Public Analysts and other Analytical Chemists, nominations were read in favour of SIR WILLIAM WILLCOX, proposed by the Council for honorary membership, and the following applicants for ordinary membership:—J. A. FREEMAN and J. T. STOCK.

* * * *

The directors of Imperial Chemical Industries, Ltd., have appointed the following members of the Board to be deputy chairmen of the Board: MR. JOHN ROGERS (now on Government service), MR. J. G. NICHOLSON and LORD MELCHETT. In addition MR. F. W. BAIN and MR. A. J. QUIG have been appointed directors of the company. Mr. Bain, a native of Aberdeen, was with the United Alkali Co., Ltd., when it was absorbed into I.C.I. Mr. Quig joined I.C.I. with Nobel's Explosives, Ltd., Glasgow. He was appointed chairman of the Paint Group of I.C.I. in 1936.

* * * *

At the annual meeting of the Manchester Section of the Society of Dyers and Colourists on April 12, MR. H. A BRASSARD, MR. N. CHAPPELL and MR. L. G. LAWRIE were re-elected to the Section Committee. Owing to his removal to the south, MR. J. R. HANNAY, the other committee member retiring automatically, had intimated that he did not wish to be nominated, and MR. J. STARKIE was elected in his place. The Knecht Memorial Prize was awarded this year to MR. JOHN TRAFFORD, 27 Clyde Road, Radcliffe, a student of the College of Technology, Manchester.

* * * *

AT the annual general meeting of the Society of Glass Technology, at "Elmfield," Northumberland Road, Sheffield, 10, on April 17, PROFESSOR W. E. S. TURNER, Hon. Secretary of the Society, was presented with his portrait, painted by Edward I. Halliday, the gift of 400 members and fellows of the Society, in commemoration of Professor Turner's election in 1938 to the Fellowship of the Royal Society and as a token of their sincere esteem and admiration. The actual portrait is hung in the lecture theatre at "Elmfield," but an album containing the names of the contributors to the portrait fund, together with a coloured replica of the portrait, will be given to Professor Turner as a memento of an outstanding event in the history of the Society.

OBITUARY

MR. WILLIAM CLARKSON, managing director of the Strathclyde Paint Co., Ltd., Bridgeton, Glasgow, died last week, aged 72, after 60 years' connection with the paint trade.

* * * *

MR. ALBERT FRANCIS DRINKWATER, sales manager in Scotland for the British Oxygen Co., Ltd., died at a nursing home in Glasgow on April 13. He had been with the British Oxygen Co. since 1912 and was one of the pioneers in Scotland of oxygen cutting. He was well-known to members of the shipbuilding and steel industries in Scotland.

Letters to the Editor

"Muddling Through"

SIR,—As an executive engaged in the administration of a coal distillation plant I have spent anxious hours in planning to hold the organisation together against the calls of military service, the age of reservation for trained chemical assistants and skilled plant operators in gas works, coke ovens and low temperature plants being scheduled at 30 years.

Without in any way criticising this reservation age, I am struck by the anomaly of these great and important industries, providing as they do vital chemicals and fuels for the conduct of the war, being drained of key-men by a reservation age of 30, while a garage hand (mechanic), such as may be found presumably at any small wayside garage, is reserved at 23 despite the fact that many cars have been driven off the road by tax and petrol restriction.

Surely an example of the grand British habit of muddling through!—Yours faithfully,

Nottingham, April 16. C. MACHEN.

Distribution of War Supply Contracts

SIR,—The Executive Council of the Chemical Workers' Union has been receiving complaints from its branches and factory committees about the alleged unfair manner in which contracts for the supply of chemicals, drugs, medical supplies, paints and varnishes and cellulose dopes are being distributed by the Ministry of Supply.

It appears from such information as the Union possesses that these contracts are limited to a few large firms who can maintain effective delivery only by working their employees under intense pressure and for extended hours with resultant bad effects on the workers' health. From other quarters the Union Executive Council is informed that many firms with effective plant and staff, able and willing to undertake Government orders, cannot obtain contract work in spite of repeated applications.

It appears that those responsible for issuing war supply contracts for chemicals and chemical products are under the impression that in the British chemical industry, which comprises some two thousand firms, large and small, there is only a handful of large firms capable of meeting the Government's war demands.

The Union Executive Council is further informed that many of the firms that are enjoying the patronage of the Ministry of Supply and handling contracts with good profit margins are not complying with the Government's "Fair Wages Clause" in the observation of such wages, conditions and practices as are recognised in the industry between employers' associations and trade unions; some of the firms to whom the "prime contractors" are sub-letting their contracts or parts thereof are also not observing this statutory obligation.

In the opinion of members of the Executive Council this alleged maldistribution of war supply contracts may be against the nation's interests, and the policy of allowing firms who do not observe trade union wages and conditions to fulfil contracts is creating most unfair competition against the progressive firms that do observe such wages and conditions, and amounts to a grave injustice.

The Union Executive Council is now engaged in gathering the fullest possible information from all branches of the Union and its factory committees, covering some 700 firms, and when their inquiries are complete representations will be made to the Minister of Supply.—Faithfully yours,

For the National Executive Council,
ARTHUR J. GILLIAN,
General Secretary.

London, S.E.1.

Chemical Matters in Parliament

Benzol

IN the House of Commons last week Mr. Batey asked the Secretary for Mines the number of years that benzol had been produced in this country, and why a committee was appointed to report on it.

Mr. Lloyd replied that benzol had been recovered as a by-product of the high-temperature carbonisation industries for many years past on a steadily increasing scale, and the difficulties of further increasing the quantity recovered were becoming progressively greater. As the maximum production was required in the national interest at the present time, an inquiry into the means of overcoming these difficulties was desirable. He would add that the committee in question was not dealing solely with benzol recovery, but with the important and wider subject of all the liquid products of high-temperature carbonisation, including the most advantageous ways of utilising such products in wartime.

Coal Treatment Committees

Mr. Batey asked the Secretary for Mines whether he could give an estimate of the cost of the six committees he set up last November to report on well-known processes of treatment of coal.

Mr. Lloyd replied that he was afraid that he could not give an estimate, but the cost would be quite small, thanks to the public spirit of the members, who had voluntarily given their time to this work. In general, the only special cost involved in setting up those committees was that incurred in paying the expenses, on the usual scales, necessarily incurred by members and assessors in the discharge of their duties.

Oil Extraction

Mr. Batey asked the Secretary for Mines whether he could state, separately, the amount of oil extracted from coal by the hydrogenation process and also by low-temperature carbonisation plants for the years 1937, 1938 and 1939; and why a committee was appointed to report on them.

Mr. Lloyd stated that the figures for 1937 and 1938 were given below; figures for 1939 were not available. No committee had been appointed to report on the hydrogenation process. As regards the low-temperature processes, the fact that little progress had been made in developing them in peace time in spite of the heavy preferential treatment accorded to liquid fuels produced from indigenous materials made it necessary to consider whether any further measures should be taken to develop them in war time. The figures are as follows:—

PRODUCTION OF OIL FROM COAL

	Motor Spirit		Creosote and Heavy Oils	
	1937	1938	1937	1938
	Tons	Tons	Tons	Tons
By hydrogenation ...	116,800	140,900	—	—
By low-temperature carbonisation ...	3,300	4,300	7,800*	10,300*

* A considerable part of these quantities was hydrogenated to obtain some of the motor spirit shown as being produced by hydrogenation.

Production of Aluminium Oxide

Mr. A. Edwards asked the Minister of Supply what steps had been taken to investigate the Dycker Hoff Sailles process for the manufacture of aluminium; and what advantages were claimed for this process over the Bezer process.

Mr. Burgin stated in reply that it was assumed that the hon. Member referred to the Seailles and the Bayer processes for the production of aluminium oxide. He understood that the former process had already been investigated by the aluminium industry in various countries, but that they did not regard it as possessing any advantage over the Bayer process normally used. It would be appreciated that these processes related to the production of alumina—and not to the method of producing aluminium, the raw metal from alumina.

New Control Orders

Magnesite and Chrome Ore

At the request of the Ministry of Supply the Board of Trade has issued an order, the Import of Goods (Prohibition) (No. 16) Order, 1940, adding the following goods to those subject to the import licensing regulations:—Natural or artificial magnesium carbonates, hydroxides, and oxides, and dolomite and mixtures wholly or mainly thereof, with or without water. Chromium ores and concentrates, whether briquetted or not. The order came into operation on Wednesday, but goods covered by the order and not previously subject to the import licensing regulations which are proved to the satisfaction of the Customs authorities to have been dispatched to the United Kingdom before the order came into force will not require a licence.

Non-Ferrous Metals, Sulphur, etc.

The Board of Trade has issued an Order, the Import of Goods (Prohibition) (Nos. 14 and 15) Orders, 1940, which came into operation on April 15, adding the following goods to those subject to the import licensing regulations. Under No. 14: Copper and alloys thereof, lead and alloys thereof, and zinc or spelter and alloys thereof, containing more than 50 per cent. by weight of copper, lead, or zinc, respectively.

Under No. 15: Sulphur ore; elemental sulphur in any form; spent oxide; and mixtures containing more than 80 per cent. by weight of elemental sulphur; pyrites of all kinds; and mineral phosphates of lime.

Export Licensing

By the Export of Goods (Control) (No. 10) Order, 1940, the Board of Trade has made the following amendments to the list of goods of which the exportation from the United Kingdom is controlled.

In Group 5, delete, "Glassware, graduated . . . A" and "glassware, resistance, scientific . . . A."

In Group 13, delete "Ammonium bichromate . . . A," "ammonium chromium alum . . . A," "chromium sesquioxide . . . A," "chromium sulphate . . . A," "potassium bichromate . . . A," "potassium chromium alum . . . A," "sodium bichromate . . . A," "sodium chromium alum . . . A." Add "chromium compounds . . . A."

In Group 13, delete "creosote, wood . . . A," "lithium compounds . . . A," "Jalap and its preparations . . . A." Add "jalap and jalap resins and their preparations . . . C," "pyrethrum extracts . . . A."

Industrial Safety in Scotland

Conference in Glasgow

SCOTLAND'S first Regional Industrial Safety Conference, organised by the Glasgow Industrial Safety Group of the National Safety First Association, was held in Glasgow recently. Sir Duncan Wilson, late Chief Inspector of Factories, was chairman at the forenoon session, and Mr. C. A. Hislop, chairman of Glasgow Industrial Safety Group, presided in the afternoon. "The Organisation and Maintenance of Works Safety" was the subject of a paper delivered by Mr. W. G. Hiscock, works manager, Scottish Dyes, Ltd., Grangemouth. The speaker said no "works safety" policy would be successful unless (1) the higher authority was convinced that the policy was sound; (2) every link in the chain of management was made to recognise the fact that the safety of those in their charge was as much their concern and responsibility as the successful turning out of their products; and (3) those turning out the products realised to the full their responsibility to themselves and their fellow workers. Mr. C. A. Oakley, director of the Scottish Division of the National Institute of Industrial Psychology, spoke on psychological factors in accident causation. Lord Provost Dollan extended a civic welcome to the delegates.

General News——————From Week to Week

THE SALT UNION, LTD., (an associate company of Imperial Chemical Industries, Ltd.) has changed its name to I.C.I. (Salt), Ltd.

TESTS OF A TYPE OF REED growing in Radipole Lake, Weymouth, are reported to have proved it to contain a high percentage of cellulose suitable for paper making. Weymouth Corporation is selling thousands of tons of the reed to be sent to paper mills.

WORKS EXTENSIONS are reported by the Thermal Syndicate, Ltd., of Wallsend; the Geigy Colour Company, Ltd., of Manchester; and Colliery Explosives, Ltd., of Newton-le-Willows.

THE NATIONAL FEDERATION of Associated Paint, Colour and Varnish Manufacturers announce an increase in current prices, as a result of increased cost of manufacture.

IT IS REPORTED that members of the National Union of Dyers, Bleachers and Textile Workers are to strike during the week ending May 11. Negotiations which have been going on with federated firms for two and a half years have now broken down. It is stated that there will not be a strike in the works of non-federated firms that have agreed to the advance in wages of 4s. 6d. to 4s. 10d. for men and 3s. for women.

THE INAUGURAL LUNCHEON of the Anglo-Egyptian Chamber of Commerce has been arranged to take place at the Savoy Hotel, London, on May 9. Formed less than six months ago, the Chamber has already over two hundred and fifty members. Many trade inquiries are being dealt with, and already the Chamber has assisted in the opening up of new markets and contacts, with a view to increasing the interchange of Anglo-Egyptian trade. The offices are at Grand Buildings, Trafalgar Square, London, W.C.2. (Tel. : ABBey 6988.)

THE MEDICAL RESEARCH COUNCIL Industrial Health Research Board has issued its Emergency Report No. 1, entitled "Industrial Health in War," being a summary of findings capable of immediate application in furtherance of the national effort. In the preface the keynote of the pamphlet is stated : " The need at the moment is rather for application of knowledge previously gained than for new researches," and working chemists will find much of use and interest in its 36 pages, including a bibliography of published reports. The Report is published by H.M. Stationery Office, price 6d.

Foreign News

A PRINTING-INK FACTORY is being built at Zemun, near Belgrade, by the Chromos Company.

NET PROFITS of the S. A. Montecatini for 1939 totalled 159,400,000 lire, against 148,600,000 lire in 1938.

THE EXPORT OF CAUSTIC SODA from Italy will in future be subject to ministerial licence.

THE DUTCH QUININE SYNDICATE are seeking industrial uses for their surplus stocks of quinine. The rubber and insecticide trades are being included in the search.

A DEPOSIT OF VERMICULITE has been discovered 80 miles east of Ravensthorpe, in the south-east of Western Australia. The finder, Mr. G. Halbert, has been granted a reserve of 300 acres.

THE GENERAL EXCEPTION to the prohibition of exports of mica and objects of mica from France has been withdrawn, and export is again subject to licence of the Ministry of Armaments.

THE YUGOSLAVIAN ALUMINIUM FACTORY at Lozovac has installed twenty new furnaces; it is now operating 59 furnaces with a daily output of nine tons of aluminium.

THE SLOVAKIAN WOOD INDUSTRY is sponsoring the establishment of a wood research institute at a cost of 4 million Slovakian crowns.

THE NORSK HYDRO NITROGEN COMPANY is considering the erection of a plant for extracting magnesium carbonate from sea-water.

ON APRIL 1 the office of the secretary of the American Institute of Chemical Engineers was moved to The Chemists' Club Building, 50 East 41st Street, New York, N.Y.

IT HAS BEEN DECIDED to hold the 1940 congress of the Australian and New Zealand Association for the Advancement of Science in Adelaide next August. The president-elect is Dr. P. Marshall, of Wellington, New Zealand.

A NEW GRAMOPHONE RECORD COMPOSITION known as Winsol, in which the place of shellac is taken by pine rosin, has been developed in the Russian Research Institute for the Wood Industry, and is now being made on a large scale.

EXPORTS OF METHANOL from the United States during 1939 rose to 1,219,813 gallons from only 196,269 during 1938. The latter was an exceptionally low total, but the 1939 figure is the highest for ten years (next highest 1,118,865 gallons in 1933).

THE LABORATORIES of the Scientific Section of the American Paint Industry have been moved to the new headquarters building of the National Paint, Varnish, and Lacquer Association, 1500 Rhode Island Avenue, N.W., Washington, D.C.

JAPANESE PRESS REPORTS relating to a proposed Spanish-Japanese Trade Pact discussed the possibility of exchanging Japanese raw silk and camphor for Spanish potash salts, mercury and industrial salt or sodium chloride.

THE ALUMINIUM-INDUSTRIE A.G., of Neuhausen, has decided to transfer the offices of their central administration provisionally from Neuhausen to their works at Chippis (Valais). The research laboratories and the administration of the Aluminiumwerke Neuhausen A.G. will remain at Neuhausen.

AN AGREEMENT HAS BEEN CONCLUDED between the Yugoslavian and German governments for the delivery of bauxite to Germany against coke. The same waggons used by Yugoslavia for the delivery of the bauxite will be returned loaded with coke.

THE FOLLOWING INCREASES IN PRICES per quintal of chemicals in Italy have been authorised : Sodium carbonate, 7 lire; caustic soda, 12 l.; sodium hypochlorite, 3.50 l.; calcium chloride, 8 l.; calcium carbide, 22 l.; citric acid, 180 l.; quebracho extract (liquid), 54 l., (solid) 100 l.

ACCORDING TO ITALIAN NEWSPAPER REPORTS, the Montecatini research departments have evolved a new process for the extraction of magnesium from sea water. A purity degree of 99.8 per cent. is claimed, and the process is stated to be suitable for industrial exploitation.

ACCORDING TO THE *Corriere della Sera*, the plant recently erected at Bolzano by the S.A. Italiana Magnesio e Leghe di Magnesio for the production of magnesium and magnesium alloys has now reached a daily output of 1000 kg. of magnesium a day.

IMPORTS OF FOREIGN COAL into Italy have been rationed according to industry. The chemical industry has been allotted quotas equivalent to eighty per cent. of last year's consumption. The remainder must be made up by the conversion of plant to the use of lignite and brown coal.

ACCORDING TO A NOTE in *Current Science*, Dr. J. L. Sarin, Industrial Chemist to the Punjab Government, and Mr. M. Y. Uppal are investigating the possibilities of employing pulses like *Cicer* for plasties. The results obtained with gram meal (*Cicer arietinum*) are of a promising character and the work is being actively pursued.

ANY CONCERN UNDERTAKING PRODUCTION of bichromates in India for the textile and tanning industries is assured by the Government of India of protection after the war provided it is conducted on sound business lines. The Commerce Member has brought to the notice of the Government of India proposals for investigating the production of dyestuffs in the country.

Forthcoming Events

AT AN ORDINARY MEETING of the Institution of Chemical Engineers, to be held on April 23 at 5.15 p.m. in the Rooms of the Geological Society, Burlington House, London, W.1, Mr. J. C. Farrant will present a paper, the title of which has been altered from that which was announced in THE CHEMICAL AGE on April 6. It is now entitled "A Review of Certain Unit Processes in the Reduction of Material."

A MEETING OF THE INSTITUTE OF FUEL will be held on April 25, at 6 p.m., in the Connaught Rooms, Great Queen Street, London, W.C.2, when a paper will be presented by Mr. J. N. Dundas Heenan, entitled " Some Food for Thought in Steam Plant Design," to be followed by a discussion. This meeting will follow the annual general meeting of the Institute which will be held at the same place.

A MEETING of the Society of Public Analysts and Other Analytical Chemists will be held at 5.30 p.m. on May 1, at the Chemical Society's Rooms, Burlington House, London, W.1, when the following papers will be read and discussed: "The Spectrophotometric Estimation of Vitamin A, with special reference to Margarine," by J. R. Edisbury; "The Estimation of Vitamin D in Margarine," by N. T. Gridgeman, H. Lees and H. Wilkinson, and "The Composition of some Jam Fruits and the Determination of the Fruit Content of Jams," by T. Macara and C. L. Hinton.

THE ANNUAL MEETING of the Iron and Steel Institute will take place at the offices of the Institute, 4 Grosvenor Gardens, London, S.W.1, on May 2 and 3, starting each day at 10 a.m. Non-members of the Institute will be welcome at the meeting, but it will be necessary for them to bring with them a letter of introduction signed by a member of the Institute. A luncheon for members will be held at Grosvenor House, Park Lane, W.1, on May 3, at 1 p.m.

A GENERAL MEETING of the Institute of Metals will be held at the Institution of Mechanical Engineers, Storey's Gate, Westminster, S.W.1, at 2 p.m. on May 8, when the following papers will be presented for discussion: "The Influence of Alloying Elements on the Crystallisation of Copper. Part II—Large Additions and the part played by the Constitution," by L. Northcott, D.Sc., Ph.D.; "The Structural Changes in Copper Effected by Cold Rolling and Annealing," by Maurice Cook, M.Sc., Ph.D., and T. Ll. Richards, B.Sc., Ph.D.; and "The Ageing of High-Purity 4 per cent. Copper-Aluminium Alloy," by Marie L. V. Gayler, D.Sc. (Mrs. Haughton), and R. Parkhouse. The meeting will be followed by the thirtieth annual May lecture, which will be given at 7 p.m., by Professor J. D. Cockcroft, M.A., Ph.D., M.Sc., F.R.S., on "The Cyclotron and its Applications."

A JOINT MEETING OF THE INSTITUTE OF FUEL and the Coke Oven Managers' Association will be held on May 23, at 6 p.m., in King's College, Newcastle-on-Tyne, when Dr. R. A. Mott will present a paper entitled "Coals Dangerous to Oven Walls," to be followed by a discussion.

Commercial Intelligence

The following are taken from printed reports, but we cannot be responsible for errors that may occur.

Mortgages and Charges

(Note.—The Companies Consolidation Act of 1908 provides that every Mortgage or Charge, as described therein, shall be registered within 21 days after its creation, otherwise it shall be void against the liquidator and any creditor. The Act also provides that every company shall, in making its Annual Summary, specify the total amount of debt due from the company in respect of all Mortgages or Charges. The following Mortgages and Charges have been so registered. In each case the total debt, as specified in the last available Annual Summary, is also given—marked with an *—followed by the date of the Summary, but such total may have been reduced.)

A. RIGBY AND CO., LTD., Lymm, soap and candle manufacturers. (M., 20/4/40.) April 4, £500 debenture to J. Ashworth, Manchester, and another; general charge.

H. FOSTER AND CO. (STEARINES), LTD., Leeds, oil and grease manufacturers. (M., 20/4/40.) April 4, £10,000, charge to J. H. Foster, Leeds; charged on lands with engineer's shop, etc., Kirkstall Road, Leeds. *Nil. July 19, 1938.

SOUTHERNDOWN ROAD LIMEWORKS, LTD., Southerndown. (M., 20/4/40.) April 3, £7,000 debentures; general charge. *Nil. December 11, 1939.

Satisfactions

SHAWS (HUDDERSFIELD), LTD., wholesale druggists, etc. (M.S., 20/4/40.) Satisfaction April 2, £480, registered June 6, 1913.

County Court Judgments

BIDDLE, WILFRED E., Wingate Lodge, Borden Road, Blackheath, paint manufacturer. (C.C.J., 20/4/40.) £38 7s. 1d. March 4.

ROBINSON, PERCY, 29a Surrey Grove, Carshalton, chemical process worker. (C.C.J., 20/4/40.) £13 4s. 0d. February 14.

GIBSON BROS. (a firm), Cropton Lane Quarries, Pickering, lime burners. (C.C.J., 20/4/40.) £24 12s. 3d. February 13.

Chemical Trade Inquiries

Australia.—A firm of agents established at Sydney wishes to obtain the representation, on a consignment basis, of United Kingdom manufacturers of industrial chemicals. (Ref. No. 196.)

British East Africa.—A firm of agents established at Nairobi wishes to obtain the representation of United Kingdom manufacturers of automatic spraying lacquers and synthetics, marine paints of highest quality. (Ref. No. 200.)

France.—An agent established at Bordeaux wishes to obtain the representation of United Kingdom manufacturers of citric and tartaric acid for South-Western France. (Ref. No. 188.)

Peru.—An agent established at Lima wishes to obtain the representation, on a commission basis, of United Kingdom manufacturers of paints, chemical products, cement, ropes, silk, cotton, woollen textiles, for Peru. (Ref. No. 216.)

Company News

British Dyestuffs Corporation, Ltd., Wexham Road, Slough, changed its name to I.C.I. (Dyestuffs), Ltd., on April 8, 1940.

Pinchin Johnson and Co., Ltd.'s, net profit for the year amounted to £355,546 and was an increase in actual trading profit of £68,456 on the preceding year.

British Tar Products, Ltd., have declared an interim dividend of 4½ per cent., less tax, on both preferred ordinary and ordinary shares (same).

Murex, Ltd., have declared an interim dividend of 7½ per cent., actual, less tax, on the 1,000,000 £1 ordinary shares, in respect of the year ending June 30, 1940.

Talbot Manufacturing Company (1926), Ltd., chemical manufacturers, etc., 185 Central Drive, Blackpool, changed its name to Talfacto, Ltd., on April 5, 1940.

British Enka, Ltd., made a profit of £97,172 on last year's trading, according to a statement made at the recent annual meeting. As the company made a loss for 1938 of £70,204, the improvement by comparison is £167,376.

Synthetic Oils, Ltd., report that the amount charged to development, including £1,301 for depreciation, for the year to September 30 last is £19,576, bringing the balance sheet figure up to £79,574. Additional capital issued during the year provided £55,270.

P. G. Galloway, Ltd., manufacturing chemists, report a net profit for the year of £25,507, which was described at the recent annual meeting of the company as considerably in excess of the profits for 1938. The directors have recommended a dividend at the rate of 11¼ per cent.

Bryant and May, Ltd., report for the year to March 31, 1940, that the net profit amounted to £566,602, compared with £552,365 in the previous year. The company is maintaining its ordinary dividend at 25 per cent., tax free, with a final of 15 per cent., tax free.

Colvilles, Ltd., report that trading profit for the past year rose from £919,596 to £1,058,462 while dividends from subsidiaries increased from £129,005 to £147,522. The aggregate profits of the subsidiary companies, after making provision for charges and contingencies, amounted to £865,191, compared with £648,856.

New Companies Registered

Dewalco, Ltd. (360,446.)—Private company. Nominal capital of £1,000 in 800 "A" ordinary and 200 "B" ordinary shares of £1 each. Manufacturers, importers and exporters of and dealers in compositions for sealing glass and metal containers, adhesives, soldering fluxes, shoe soles and heels, artificial leathers, porous rubber filters, dispersing agents, moisture resisting coatings, gas absorbents and textile printing accessories, etc. Subscribers: P. M. Browne and H. E. Walker. Solicitors: Linklaters and Paines, 2 Bond Court, Walbrook, E.C.4. Registered office: 3 St. James's Square, S.W.1.

H. Lundbeck and Co., Ltd. (360,363.)—Private company. Capital £1,000 in 1,000 ordinary shares of £1 each. Chemists, druggists, drysalters, oil and colour men, manufacturers of and dealers in pharmaceutical, chemical, industrial and other preparations, compounds, oils, paints, pigments and varnishes, etc. Subscribers: P. Reid Pitts, Raycombe, 54 Olive Avenue, Leigh-on-Sea; William G. Warner. Solicitors: Roche, Son and Neale, 1 St. Olave's Court, Old Jewry, E.C.2.

Basic Minerals, Ltd. (360,565.)—Private company. Nominal capital £500 in 500 shares of £1 each. Mineral, metal, ore and chemical merchants and agents, importers, exporters, shippers and factors, etc. Subscribers: J. Vivian Taylor and Maureen Lawless, Essex House, Essex Street, W.C.2. Solicitors: Kenneth Brown, Baker, Baker, Essex House, Essex Street, W.C.2.

Margros Chemicals, Ltd. (360,477.)—Private company. Capital £2,000 in 2,000 ordinary shares of £1 each. Manufacturers of varnish, white lead and zinc, merchants, colour makers, levigators and grinders. Subscribers: Fdk. H. Harman, 39 Cantley Gardens, Newbury Park, Ilford; Alice M. Byatt. Solicitor: Albert M. Oppenheimer, 31 Queen Victoria Street, E.C.4.

Weekly Prices of British Chemical Products

THE market for general chemicals has followed a steady course during the past week with a moderate expansion in spot and near delivery transactions. Contract deliveries to the main consuming industries are good and the movement of chemicals to the textile and tanning industries covers fairly substantial quantities. Borax, boric acid, oxalic acid, prussiate and bichromates are in good demand and there is a steady call for tartaric and citric acids, whilst an increasing interest is displayed in fertiliser chemicals. The price position on the whole remains firm with home makers' quotations unchanged, but offers of imported chemicals continue to command high rates. So far as the coal tar products are concerned, market conditions continue on the quiet side. There is a good demand for carbolic acid crystals, cresylic acid and naphthalene with spot offers of the latter item rather scarce. Deliveries under existing contracts are reported to be satisfactory and prices generally display a firm undertone.

MANCHESTER.—Trading in chemical products on the Manchester market during the past week has been described as of a reasonably satisfactory nature. So far as new business is concerned transactions this week have been on a fairly steady scale, though less active than it was a short time ago. From the point of view of the movement of supplies into consumption traders have little ground for complaint, for delivery specifications are circulating freely and good quantities in the aggregate are being taken up. Prices generally remain on a firm basis. In the case of the tar products the light materials meet with a steady demand, a moderate business being reported in most of the other sections.

GLASGOW.—Very little change can be noted in the amount of business transacted in the Scottish heavy chemical market during the past week. Normal trading in all sections continues at firm or advancing prices. Developments in the Scandinavian market have, of course, upset imports from and exports to these countries.

Price Changes

Rises: Calcium Acetate, *o*-Toluidine, Pitch (Manchester), Vermilion.

Falls: Carbolic Acid Crystals (Manchester).

* In the case of certain products, here marked with an asterisk, the market is nominal, and the last ascertainable prices have been scheduled. At present all intermediates are included under this head.

General Chemicals

Acetic Acid.—Maximum prices per ton: 80% technical, 1 ton £36 10s.; 10 cwt./1 ton, £37 10s.; 4/10 cwt., £38 10s.; 80% pure, 1 ton, £38 10s.; 10 cwt./1 ton, £39 10s.; 4/10 cwt., £40 10s.; commercial glacial, 1 ton, £46; 10 cwt./1 ton, £47; 4/10 cwt., £48; delivered buyers' premises in returnable barrels. £4 per ton extra if packed and delivered in glass.

Acetone.—Maximum prices per ton, 50 tons and over, £52 10s.; 10/50 tons, £53; 5/10 tons, £53 10s.; 1/5 tons, £54; single drums, £55, delivered buyers' premises in returnable drums or other containers having a capacity of not less than 45 gallons each; delivered in containers of less than 45 gallons but not less than 10 gallons £10 10s. per ton in excess of maximum prices; delivered in containers less than 10 gallons each £10 10s. per ton in excess of maximum prices, plus a reasonable allowance.

***Alum.**—Loose lump, £8 7s. 6d. per ton d/d.

***Aluminium Sulphate.**—About £8 per ton f.o.b. Liverpool.

Ammonia Anhydrous.—99.95%, 1s. to 2s. per lb., according to quantity in loaned cylinders, carriage paid; less for important contracts.

Ammonium Carbonate.—£32-£36 per ton d/d in 5 cwt. casks.

Ammonium Chloride.—Grey galvanising, £18 per ton, in casks, ex wharf. See also Salammoniac.

***Antimony Oxide.**—£68 per ton.

Arsenic.—99/100%, about £25 per ton, ex store.

Barium Chloride—98/100%, prime white crystals, £11 10s. 0d. to £13 per ton, bag packing, ex works; imported material would be dearer.

Bleaching Powder.—Spot, 35/37% £10 per ton in casks, special terms for contract.

Borax, Commercial.—Granulated, £20 10s. per ton; crystal, £21 10s.; powdered, £22; extra finely powdered, £23; B.P. crystals, £29 10s.; powdered, £30; extra fine £31 per ton for ton lots in free 1-cwt. bags, carriage paid in Great Britain. Borax Glass, lump, £64; powder, £65; in tin-lined cases for home trade only, packages free, carriage paid in Great Britain.

Boric Acid.—Commercial granulated, £34 10s. per ton; crystal £35 10s.; powdered, £36 10s.; extra finely powdered, £38 10s.; large flakes, £47; B.P. crystals, £43 10s.; powdered, £44 10s.; extra fine powdered, £46 10s. per ton for ton lots, in free 1-cwt. bags, carriage paid in Great Britain.

Calcium Bisulphite.—£6 10s. to £7 10s. per ton f.o.r. London.

***Calcium Chloride.**—GLASGOW: 70/75% solid, £5 12s. 6d. per ton ex store.

Charcoal Lump.—£10 to £12 per ton, ex wharf. Granulated £11 to £14 per ton according to grade and locality.

***Chlorine, Liquid.**—£19 15s. per ton, d/d in 16/17 cwt. drums (3-drum lots); 4¾d. per lb. d/d station in single 70-lb. cylinders.

Chrometan.—Crystals, 4d. per lb.; liquor, £19 10s. per ton d/d station in drums. GLASGOW: Crystals 4d. per lb. in original barrels.

Chromic Acid.—1s. per lb., less 2½%; d/d U.K. GLASGOW: 1s. 0½d. per lb. for 1 cwt. lots.

Chromic Oxide.—Green, 1s. 4d. per lb., d/d U.K.

Citric Acid.—1s. 2d. per lb. MANCHESTER: 1s. 3d.

***Copper Sulpate.**—Nominal.

Cream of Tartar.—100%, £6 2s. to £6 7s. per cwt., less 2½%. Makers' prices nominal, imported material about £170 per ton to quantity, d/d in sellers' returnable casks; imported material would be dearer.

Formic Acid.—85%, £44 10s. per ton for ton lots, carriage paid, carboys returnable; smaller parcels quoted at 46s. 6d. to 49s. 6d. per cwt., ex store.

Glycerine.—Chemically pure, double distilled, 1,260 s.g., in tins, £3 10s. to £4 10s. per cwt. according to quantity; in drums, £3 2s. 6d. to £3 16s. 0d. Refined pale straw industrial, 5s. per cwt. less than chemically pure.

Hexamine.—Technical grade for commercial purposes, 1s. 4d. per lb.; free-running crystals are quoted at 1s. 7½d. to 1s. 10½d. per lb.; carriage paid for bulk lots.

Hydrochloric Acid.—Spot, 6s. 1½d. to 8s. 7½d. carboy d/d according to purity, strength and locality.

Iodine.—Resublimed B.P., 9s. 2d. to 13s. per lb., according to quantity.

Lactic Acid.—Dark tech., 50% by vol., £33 per ton; 50% by weight, £38; 80% by weight, £67; pale tech., 50% by vol., £39 10s.; 50% by weight, £46, 80% by weight, £74. Not less than one ton lots ex works; barrels returnable, carriage paid.

Lead Acetate.—White, £48 to £50, ton lots.

Lead Nitrate.—About £44 per ton d/d in casks.

Lead, Red.—English, 5/10 cwt., £41 10s.; 10 cwt. to 1 ton, £41 5s.; 1/2 tons, £41; 2/5 tons, £40 10s.; 5/20 tons, £40; 20/100 tons, £39 10s.; over 100 tons, £39 per ton, less 2½ per cent., carriage paid; non-setting red lead, 10s. per ton dearer in each case; Continental material, £1 per ton cheaper.

Lead, White.—Dry English, less than 5 tons, £51; 5/15 tons, £47; 15/25 tons, £46 10s.; 25/50 tons, £46; 50/200 tons, £45 10s. per ton, less 5% carriage paid; Continental material, £1 per ton cheaper. Ground in oil, English, 1/5 cwt., £59 10s. 5/10 cwt., £58 10s.; 10 cwt. to 1 ton, £58; 1/2 tons, £56 10s.; 2/5 tons, £55 10s.; 5/10 tons, £53 10s.; 10/15 tons, £52 10s.; 15/25 tons, £52; 25/50 tons, £51 10s.; 50/100 tons, £51 per ton, less 5% carriage paid. Continental material £2 per ton cheaper.

Litharge.—1 to 2 tons, £41 per ton.

Magnesite.—Calcined, in bags, ex works, about £12 to £15 per ton.

Magnesium Chloride.—Solid (ex wharf), £12 to £13 5s. per ton.

***Magnesium Sulphate.**—Commercial, £5 10s. per ton, ex wharf.

Mercury Products.—Controlled prices for 1 cwt. quantities: Bichloride powder, 9s. 1d.; bichloride lump, 9s. 8d.; bichloride ammon. powder, 10s. 7d.; bichloride ammon. lump, 10s. 5d.; mercurous chloride, 10s. 11d.; mercury oxide, red cryst., B.P., 12s. 3d.; red levig. B.P., 11s. 9d.; yellow levig. B.P., 11s. 7d.

***Methylated Spirit.**—61 O.P. industrial, 1s. 5d. to 2s. per gal.; pyridinised industrial, 1s. 7d. to 2s. 2d.; mineralised, 2s. 6d. to 3s. Spirit 64 O.P. is 1d. more in all cases and the range of prices is according to quantities.

***Nitric Acid.**—Spot, £19 to £26 per ton, according to strength, quantity and destination.

Oxalic Acid.—From £60 per ton for ton lots, carriage paid, in 5-cwt. casks; smaller parcels would be dearer; deliveries slow.

***Paraffin Wax.**—Nominal.

Potash, Caustic.—Liquid, £30 to £35 per ton, according to quantity.

Potassium Bichromate.—6d. per lb., carriage paid.

Potassium Carbonate.—96/98%, quoted between £37 10s. and £40 per ton.

Potassium Chlorate.—Imported powder and crystals, ex store London, 10d. to 1s. per lb.

Potassium Iodide.—B.P., 8s. to 11s. 2d. per lb., according to quantity.

Potassium Nitrate.—Small granular crystals, £26 to £29 per ton ex store, according to quantity.

Potassium Permanganate.—B.P., 1s. 4½d. to 1s. 5½d. per lb.; commercial, £7 9s. 6d. to £8 1s. 6d. per cwt., according to quantity, d/d.

Potassium Prussiate.—Yellow, about 1s. 2d. to 1s. 5d. per lb., supplies scarce.

Salammoniac.—Dog-tooth crystals, £45 per ton; medium, £43 10s.; fine white crystals, £16 10s.; in casks, ex store.

Soda, Caustic.—Solid, 76/77% spot, £14 per ton d/d station.

Soda Crystals.—Spot, £5 to £5 5s. per ton d/d station or ex depot in 2-cwt. bags.

Sodium Acetate.—£37 to £40 per ton, ex wharf.

Sodium Bicarbonate.—About £10 10s. to £11 10s. per ton, in bags.

Sodium Bichromate.—Crystals, 5d. per lb., net d/d U.K. GLASGOW: 5⅞d. per lb., carriage paid.

Sodium Bisulphite Powder.—60/62%, £16 per ton d/d in 2-ton lots for home trade.

Sodium Carbonate Monohydrate.—£20 per ton d/d in minimum ton lots in 2 cwt. free bags.

Sodium Chlorate.—£32 to £39 per ton, d/d, according to quantity.

Sodium Hyposulphite.—Pea crystals, £16 17s. 6d. per ton for 2-ton lots; commercial, £13 10s. per ton. MANCHESTER: Commercial, £13; photographic, £16 10s.

Sodium Iodide.—B.P., for not less than 28 lb., 8s. 10d. per lb.; for not less than 7 lb., 10s. 9d. per lb.

***Sodium Metasilicate.**—£14 5s. per ton, d/d U.K. in cwt. bags.

Sodium Nitrate.—Refined, £9 10s. to £10 per ton for 6-ton lots d/d.

Sodium Nitrite.—£18 15s. per ton for ton lots.

Sodium Perborate.—10%, £4 10s. per cwt. d/d in 1-cwt. drums.

Sodium Phosphate.—Di-sodium, £16 to £17 per ton delivered for ton lots. Tri-sodium, £18 per ton delivered per ton lots.

Sodium Prussiate.—From 6d. per lb. ex store.

Sodium Silicate.—£8 2s. 6d. per ton, for 4-ton lots.

***Sodium Sulphate (Glauber Salts).**—£4 10s. per ton d/d.

Sodium Sulphate (Salt Cake).—Unground, Spot, £4 1s. per ton d/d station in bulk. MANCHESTER: £4.

Sodium Sulphide.—Solid 60/62%, Spot, £13 15s. per ton d/d in drums; crystals, 30/32%, £9 10s. per ton d/d in casks. MANCHESTER: Concentrated solid, 60/62%, £13; crystals, £9 15s.

***Sodium Sulphite.**—Pea crystals, spot, £16 per ton d/d station in kegs.

***Sulphur Precip.**—B.P., £55 to £60 per ton according to quantity. Commercial, £50 to £55.

Sulphuric Acid.—168° Tw., £5 7s. to £5 17s. per ton; 140° Tw. arsenic-free, £3 15s. to £4 5s.; 140° Tw., arsenious, £3 7s. 6d.

Tartaric Acid.—1s. 6¼d. per lb., less 5%, carriage paid for lots of 5 cwt. and upwards. Makers' prices nominal; imported material 2s. 3d. to 2s. 6d. per lb., ex wharf. MANCHESTER: 1s. 7d. per lb.

Zinc Oxide.—Maximum prices: White seal, £30 17s. 6d. per ton; red seal, £28 7s. 6d. d/d; green seal, £29 17s. 6d. d/d buyers' premises.

Zinc Sulphate.—Tech., about £25, carriage paid, casks free.

Rubber Chemicals

Antimony Sulphide.—Golden, 10½d. to 1s. 7½d. per lb., according to quality. Crimson, 1s. 9d. to 1s. 11d. per lb.

Arsenic Sulphide.—Yellow, 1s. 6d. to 1s. 8d. per lb.

Barytes.—Imported material £6 to £9 per ton according to quality.

Carbon Black.—About 7d. to 7½d. per lb., according to quantity.

Carbon Bisulphide.—£31 to £36 per ton, according to quantity, in free returnable drums.

Carbon Tetrachloride.—£50 to £55 per ton, according to quantity, drums extra.

India-rubber Substitutes.—White, 5⅜d. to 6⅜d. per lb.; dark 5½d. to 6d. per lb.

Lamp Black.—Imported material is quoted at about £35 to £40 per ton.

Lithopone.—30%, £18 17s. 6d. per ton; 60%, £31 to £32 per ton. Imported material would be dearer.

Sulphur.—Finely powdered, about £15 per ton, delivered.

Sulphur Chloride.—6d. to 8d. per lb., according to quantity.

Vegetable Black.—£35 per ton upwards; 28/30%, £15 10s. 0d.; 60%, £29, delivered buyers' premises.

Vermilion.—Pale or deep, 11s. per lb., for 7 lb. lots.

Zinc Sulphide.—About £63 per ton ex works.
Plus 5% War Charge.

Nitrogen Fertilisers

Ammonium Sulphate.—Per ton in 6-ton lots d/d farmer's nearest station, March/June, £9 6s.

Calcium Cyanamide.—£12 10s. for 5-ton lots per ton net f.o.r. or ex store, London. Supplies small.

"Nitro-Chalk."—£8 18s. per ton, in 6-ton lots, d/d farmer's nearest station, January/June delivery.

Concentrated Complete Fertilisers.—£11 18s. to £12 4s. per ton in 6-ton lots, d/d farmer's nearest station.

Ammonium Phosphate Fertilisers.—£11 14s. to £16 6s. per ton in 6-ton lots, d/d farmer's nearest station.

Coal Tar Products

Benzol.—Industrial (containing less than 2% of toluol), 2s. to 2s. 1d. per gal., ex works, nominal.

Carbolic Acid.—Crystals, 9d.-11d. per lb.; Crude, 60's, 3s. 3d. to 3s. 6d., according to specification. MANCHESTER: Crystals, 1s. 2d. per lb., d/d; crude, 4s. to 4s. 3d. naked, at works.

Creosote.—Home trade, 5d. per gal., f.o.r., makers' works; exports 6d. to 6¼d. per gal., according to grade. MANCHESTER: 4¾d. to 7d.

Cresylic Acid.—99/100%, 2s. 11d. to 3s. 3d. per gal., according to specification. MANCHESTER: Pale, 99/100%, 2s. 9d.

Naphtha.—Solvent, 90/100°, 1s. 8d. to 1s. 9d. per gal.; solvent, 95/160°, 1s. 11d. to 2s., naked at works; heavy 90/190°, 1s. 3d. to 1s. 5d. per gal., naked at works, according to quantity. MANCHESTER: 90/160°, 1s. 9d. to 1s. 11d. per gal.

Naphthalene.—Crude, whizzed or hot pressed, £10 to £11 per ton; purified crystals, £20 per ton in 2-cwt. bags; flaked, £21 5s. per ton. Fire lighter quality, £6 to £7 per ton ex works. MANCHESTER: Refined, £26.

Pitch.—Medium, soft, 55s. per ton, f.o.b. MANCHESTER: 46s. f.o.b. East Coast.

Pyridine.—90/140°, 19s. to 25s. per gal.; 90/160°, 17s. to 19s. 6d. 80/180°, 3s. 9d. to 4s. 6d. per gal., f.o.b. MANCHESTER: 18s. to 21s. per gal.

Toluol.—Pure, 2s. 5d., nominal. MANCHESTER: Pure, 2s. 5d. per gal., naked.

Xylol.—Commercial, 2s. 9d. per gal.; pure, 2s. 11d. MANCHESTER: 2s. 11d. per gal.

Wood Distillation Products

Calcium Acetate.—Brown, £8 10s. to £9 per ton; grey, £13 to £14. MANCHESTER: Grey: £16.

Methyl Acetone.—40.50%, £42-£45 per ton.

Wood Creosote.—Unrefined, 1s. to 1s. 6d. per gal., according to boiling range.

Wood Naphtha, Miscible.—3s. 10d. to 4s. per gal.; solvent, 4s. to 4s. 6d. per gal.

Wood Tar.—£5 to £6 per ton, according to quality.

*Intermediates and Dyes

m-**Cresol** 98/100%.—1s. 8d. to 1s. 9d. per lb. in ton lots.

o-**Cresol** 30/31° C.—8d. to 9d. per lb. in ton lots.

p-**Cresol** 34/35° C.—1s. 8d. to 1s. 9d. per lb. in ton lots.

Dichloraniline.—2s. 7d. per lb.

Dinitrobenzene.—8d. per lb.

Dinitrotoluene.—48/50° C., 9d. per lb.; 66/68° C., 11½d.

Nitrobenzene.—Spot, 5½d. per lb., in 90-gal. drums, drums extra, 1-ton lots d/d buyer's works.

Nitronaphthalene.—10d. per lb.; P.G., 1s. 0½d. per lb.

o-**Toluidine.**—1s. per lb., in 8/10 cwt. drums, drums extra.

p-**Toluidine.**—2s. per lb., in casks.

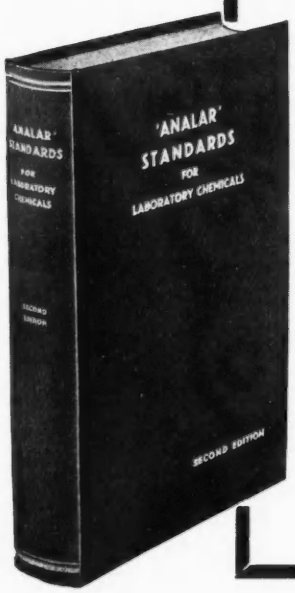
m-**Xylidine Acetate.**—4s. 5d. per lb., 100%.

Latest Oil Prices

LONDON.—April 18.—For the period ending May 4, per ton, net, naked, ex mill, works or refinery, and subject to additional charges according to package and location of supplies:—LINSEED OIL, raw, £42 10s. RAPESEED OIL, crude, £44 5s. COTTONSEED OIL, crude, £31 2s. 6d.; washed, £34 5s.; refined edible, £35 12s. 6d.; refined deodorised, £36 10s. SOYA BEAN OIL, crude, £33; refined deodorised, £37. COCONUT OIL, crude, £28 2s. 6d.; refined deodorised, £31 7s. 6d. PALM KERNEL OIL, crude, £27 10s.; refined deodorised, £30 15s. PALM OIL, refined deodorised, £33. GROUNDNUT OIL, crude, £35 10s.; refined deodorised, £40. WHALE OIL, crude hardened, 42 deg., £30 10s.; refined hardened, 42 deg., £33. ACID OILS.—Groundnut, £24; soya, £22; coconut and palm kernel, £22 10s. ROSIN, 25s. to 35s. per cwt., ex wharf, according to grade. TURPENTINE, 53s. per cwt., spot, American, including tax, ex wharf, barrels, and ex discount.

HULL.—April 17.—American turpentine, spot, 55s. per cwt. in barrels ex store.

ANALAR
STANDARDS



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Graham Street London N.1

Chemical and Allied Stocks and Shares

SENTIMENT on the Stock Exchange has continued to be assisted by the firm undertone in British Government securities. Nevertheless, business was again at a low ebb, awaiting the impending Budget and further news as to the progress of the war. The market is continuing to take the view that E.P.T. may be increased, but that important concessions may be made to ensure that this tax does not bear unjustly on progressive companies which have reached a stage when reasonable benefits can be expected from capital expended in recent years.

* * * *

Moderate fluctuations were shown in Imperial Chemical ordinary units, which at 31s. 6d. were virtually unchanged on balance for the week; the market view is that the statements at the annual meeting are likely to confirm that the company is well placed to meet the many changes brought about by the war. B. Laporte transferred around 70s. 7½d. awaiting the final dividend announcement, due next month, while Borax Consolidated at 29s. 9d. had a firm appearance, and moderate gains were recorded in Turner and Newall, British Oxygen and a number of other widely-held shares. Lever and Unilever, however, reacted from 33s. 6d. to 31s. 6d. on balance, and the preference units were also lower, while Lever N.V. moved down from 32s. to 29s. Although the market expects the impending results to create a good impression, sentiment is affected by the fear that Holland may become involved in the war. Swedish Match shares showed a small rally to 11s. 3d., but British Match were 1s. down at 34s., despite the bonus announced by the Bryant and May subsidiary, it being realised that the match trade will be affected by the war in Scandinavia.

* * * *

Dunlop Rubber ordinary units fluctuated, but rallied to 36s. 6d. under the influence of the full results. The directors state that since the war Government orders increased, but that they represent only 7½ per cent. of the turnover of the Dunlop group. Rather more attention has been given to the shares of British Tyre and Rubber, and also to Avon India Rubber ordinary, which were slightly better at 41s. 3d. and 22s. 6d. respectively. Business in Fison Packard was again recorded around 40s. William Blythe were lower at 6s. 6d., but these 3s. shares are now "ex" the dividend. British Glues 4s. shares were maintained at 6s. 9d., and the participating preference shares transferred between 28s. 9d. and 29s. 3d.

A fairly steady tendency was shown in Dorman Long, Consett Iron and the majority of iron and steel shares, and awaiting the dividend announcements, Babcock and Wilcox and Hopkinsons were higher at 46s. 3d. and 45s. 6d. respectively. Cotton textile securities were inclined to respond to encouraging trade reports. On the other hand, Courtaulds and most other rayon shares were less firm, sentiment being affected by the interruption of wood pulp supplies from Scandinavia. No immediate cut in rayon output is apparently generally anticipated, however, and it is realised that chemical and allied products can be expected to play an important part in the activities of rayon companies during the period of the war. Lansil ordinary shares were higher at 18s. 6d. on market anticipations that an improved dividend may be in prospect.

* * * *

Expectations that the past year's results will create a good impression maintained firmness in Boots Drug, which were around 44s. Beechams Pills 2s. 6d. deferred shares were steady at 8s. 3d., the market view being that the dividend for the past financial year may be around 25 per cent. British Drug Houses ordinary shares were again 24s. Goodlass Wall 10s. shares continued to be quoted at par, pending declaration of the dividend, and Blythe Colour 4s. ordinary were 3d. better at 8s. 6d. Cellon 5s. ordinary continued to be quoted at 15s.

* * * *

"Shell" and most other leading oil shares were slightly lower on balance, the disposition being to await the interim dividend announcement of Trinidad Leaseholds and the past year's results of the Burmah Oil Co.

TO SUPPLEMENT THEIR PRODUCTION of chemicals from Searles Lake brine, the American Potash and Chemical Corporation are installing machinery to recover bromine from which both liquid bromine and alkali bromides will be produced. In 1939 over one billion gallons of the brine were treated in the manufacture of alkali salts, borax, etc. This quantity carries almost ten million lbs. of bromine, of which it is planned at present to recover from two to three million pounds per annum. Production is expected to start this spring.

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CLASSIFIED SECTION

NOTE : Trade announcements, other than strictly second-hand and job lines, cannot be inserted in these pages except by firms whose advertisements run in the display columns

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